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Application Number	Not assigned	
Filing Date	July 9, 2001	
First Named Inventor	RIESS et al	
Group Art Unit	Not assigned	
Examiner Name	Not assigned	
Attorney Docket Number	11927/46002	

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(JM)		4,847,797		PICCHI et al	7/11/89	
		5,214,675		MUELLER et al	5/25/93	
1		5,444,712		BETTS et al	8/22/95	
		5,533,050		ISARD et al	7/2/96	
		5,541,964		COHEN et al	7/30/96	
		5,550,924		HELF et al	8/27/96	
1		5,694,423		LARSSON et al	12/2/97	
Τ.		5,793,807		WERNER et al	8/11/98	
		5,809,074		WERNER et al	9/15/98	
T		5,825,832		BENEDETTO	10/20/98	
		5,835,731		WERNER et al	11/10/98	
1		5,867,539		KOSLOV	2/2/99	
V		5,940,440		WERNER et al	8/17/99	
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Substitute for form 1449A/PTO Complete if Known **Application Number** Not assigned **INFORMATION DISCLOSURE** Filing Date July 9, 2001 STATEMENT BY APPLICANT First Named Inventor RIESS et al **Group Art Unit** Not assigned (use as many sheets as necessary) **Examiner Name** Not assigned of 2 11927/46002 Sheet Attorney Docket Number

Examiner nitials *	Cite No.1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.							
Kran	_	Kwon et al, "A Blind Equalization with the Variable Decision Region", Pers. Indoor and Mobile R. Comm., vol. 2, pp 322-326 (Sept. 1997)							
(		Lee et al, "A Decision-Directed Blind Equalization with the Error Variance Estimation", vol. 1, pp 99-103, IEEE, (Oct. 1997)							
		Lee et al, "Convergence Analysis of the Stop-and-Go Blind Equalization Algorithm", IEEE Trans. Comm., vol. 47, no. 2, pp 177-180, (Feb. 1999)							
		Xu et al, "An Improved Decision-Directed Equalization Algorithm for MQAM Modulation", Chinese Journal of Electronics, vol. 9, pp 45-51 (1997)							
		Xu et al, "New Decision-Directed Equalization Algorithm for QAM Communication Systems", IEEE Global Telecommunications Conference 1996, vol. 2, pp 1330-1334, (1996)							
		Werner et al, "Blind Equalization for Broadband Access", IEEE Comm., vol. 37, no. 4, pp 87-93, (April 1999)							
		Lee et al, "Joint Blind Equalization with a Shell Partition-Based CMA for QAM Signal Constellations", IEEE Int1. Conference on Acoustics, Speech, and Signal Processing, IEEE Computer Society Press, pp 2513-2516, (April 21-24, 1997)	·						
		Tseng et al, "A Stop-and-Go Dual-Mode Algorithm for Blind Equalization", Globecom 96, vol. 2, pp 1427-1431, (November 18-22, 2996)							
		Garth et al, "Blind Equalization Algorithms with Automatic Constellation Phase Recovery for Dual-Mode CAP-QAM Reception", 1999 IEEE Int'il. Conference on Communications, vol. 3, pp 1531-1536, (June 6-10, 1999)							
	_	Axford et al, "A Dual-Mode Algorithm for Blind Equalization of QAM Signals: CADAMA", 29th Asilomar Conference on Signals, Systems & Computers, vol. 1, pp 172-176, (October 30 - November 1, 1995)							
V		Weerackody et al, "Dual-Mode Type Algorithms for Blind Equalization", IEEE Transactions on Communications, Vol. 42, no. 1, pp 22-28, (January 1994)							

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Jablon, Neil K., "Joint Blind Equalization, Carrier Recovery, and Timing Recovery for High-Order QAM Signal Constellations", IEEE Transactions on Signal Processing, pp. 1383-1397, Vol. 40, No. 6, June 1992										
		Johnson et Review", <i>Pr</i> 1998	Johnson et al, "Blind Equalization Using the Constant Modulus Criterion: A Review", <i>Proceedings of the IEEE</i> , pp. 1927-1950, Vol. 86, No. 10, October							
		Yang et al, "The Multimodulus Blind Equalization Algorithm", 1997 13 <sup>th</sup> Int'l Conference on Digital Signal Processing Proceedings, DSP 97", pp. DSP 97-127 through DSP 97-130, Volume 1 of 2, July 2-4, 1997, Santorini, Hellas (Greece)								
		Proceedings	Treichler et al, "Practical Blind Demodulators for High-Order QAM Signals", Proceedings of the IEEE, Special Issue on Blind Systems Identification and Estimation, edited by R. Liu and L. Tong, pp. 1907-1926, Vol. 86, No. 10,							
		Gertsman et al, "Symbol-by-Symbol MAP Demodulation of CPM and PSK Signals on Rayleigh Flat-Fading Channels", <i>IEEE Transactions on Communications</i> , pp. 788-799, Vol. 45, No. 7, July 1997								
	Benedetto et al, "A Soft-Input Soft-Output APP Module for Iterative Decoding of Concatenated Codes", <i>IEEE Communications Letters</i> , pp. 22-24, Vol. 1, No. 1, January 1997									
		Kenington, P.B., "Emerging Technologies for Software Radio", <i>Electronics Communication Engineering Journal</i> , pp. 69-83, Vol. 11, No. 2, April 1999								
	Porat et al, "Blind Equalization of Digital Communication Channels Using High- Order Moments", IEEE Transactions on Signal Processing, Vol. 39, No. 2, February 1991									
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**Application Number** 

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INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

Filing Date July 9, 2001

First Named Inventor RIESS et al

Group Art Unit 2819

Examiner Name Not assigned

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Sheet 2 of 2

Examiner Name Not assigned
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	_	OTHER PRIOR ART NON PATENT LITERATURE DOCUMENTS	
Examiner Initials *	Cite No.1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T 2
Kran	_	Bahl et al, "Optimal Decoding of Linear Codes for Minimizing Symbol Error Rate", <i>IEEE Transactions on Information Theory</i> , pp. 284-287, Vol. IT-20, No. 2, March 1974	
		Sato, Yoichi, "A Method of Self-Recovering Equalization for Multilevel Amplitude-Modulation Systems", <i>IEEE Transactions on Communications</i> , Vol. COM-23, No. 6, June 1975	
	·	Viterbi et al, <i>Principals of Digital Communication and Coding</i> , Chapter 2, pp. 47-127, McGraw-Hill Book Company, 1979	
<b>V</b>		Proakis, John G., <i>Digital Communications</i> , Chapters 5, 6, 10, 11, Third Edition, McGraw-Hill, Inc., 1983	
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	Kong et al, "Adaptive MLSE of QAM Signals over Frequency Nonselective Rayleigh Fading Channels", IEE Proceedings: Communications, Great Britain, Institution of Electrical Engineers, Vol. 145, No. 6, December 1998, ISSN 1350-2425														
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